

## ABSTRACT OF THE DISCLOSURE

The present invention's method and apparatus to generate test sequences for communication protocols input the data of the finite state machines (FSM) representing the specification of the communication protocols, and convert the test sequence generation problem to the SAT problem, and generate test sequences for communication protocols by solving the SAT problem.

In addition, the present invention converts the test sequence generation problem to the SAT problem by modifying the FSM and describing the test sequence generation problem by using a conjunctive normal form formula based on the modified FSM.

According to the present invention, by considering the multiple UIO sequences and the overlapping of the UIO sequences, the minimum length test sequence to check whether the states described in the specification of the protocol exist in the implementation of the FSM can be generated.

According to the present invention, by considering the overlapping of the subsequences, the minimum length test sequences to check whether the state transitions described in the specification of the protocol is correctly implemented in the implementation of the FSM can be generated.